



Taking the lead
at the
Knapsack site.



eew

Energy from Waste

Welcome to
EEW Energy from Waste!

Energy is essential to everyday life. Since the availability of fossil fuels is limited, the use of energy from waste is becoming increasingly important. As Germany's leading company in the production of environmentally friendly energy from thermal waste recovery, it is our mission to take the lead: With ultra-modern energy from waste plants. With state-of-the-art technology that meets the latest environmental standards. With highly qualified, dedicated employees. With good and constructive relationships with citizens, municipalities and companies. And, of course, with environmentally friendly energy from waste.

.....

 **1 tonne of waste = 600 KWh of electricity**

Electricity from waste is an important resource. The calorific value of the material is comparable to that of brown coal, making it virtually predestined for energy generation.

.....

EEW Energy from Waste EBKW Knapsack.
Built to serve the region.

Energy from waste plants are a special kind of high-quality power plant. They not only have to comply with very strict emission limits, they must also satisfy the highest technical demands, and are therefore continuously monitored and optimised. For around 30 years, the EEW Energy from Waste Group has been planning, building and operating thermal waste recovery plants that set standards across Europe. In the vicinity of our plants, which stand out for their low emissions, high efficiency and excellent workplace safety, new companies and thus new jobs are being created. At the same time, consumers and nearby industrial firms benefit from using the environmentally friendly energy that EEW generates.

The chemical industrial park in Hürth-Knapsack has existed for more than 100 years, and the location was chosen at the time due to its proximity to inexpensive energy from brown coal. Today the industrial complex still has a large demand for energy, which is now met in an efficient and environmentally friendly manner. The power is generated by the Knapsack energy from waste plant (EBKW) operated by EBS Kraftwerk GmbH, a company belonging to EEW Energy from Waste and YNCORIS GmbH & Co. KG, the operator of the chemical park. Each year, 140,000 megawatt hours of electricity are produced here, securing the energy supplies of the nearby companies without the need for long transport routes. At the plant, 320,000 tonnes of refuse derived fuel (RDF) – specially treated commercial and industrial waste with a very high calorific value – is converted to electricity in a safe, low-emission process. We are proud to take the lead – for even more energy in the Chemiepark Knapsack and for environmental protection.

An overview of how the
EEW Knapsack plant works.

1

Every day, around 1,300 tonnes of refuse derived fuel (RDF) is transported to the energy from waste plant.

2

The fuel is collected and temporarily stored in the waste bunker, which has a capacity of around 10,000 tonnes. The air pressure here is kept slightly negative so that no emissions or odours can escape. Environmental protection is therefore integral right from the start.

3

The waste is mixed and continuously transferred to the feed hopper. From here, the waste moves to the combustion grate for the two lines (boilers).

4

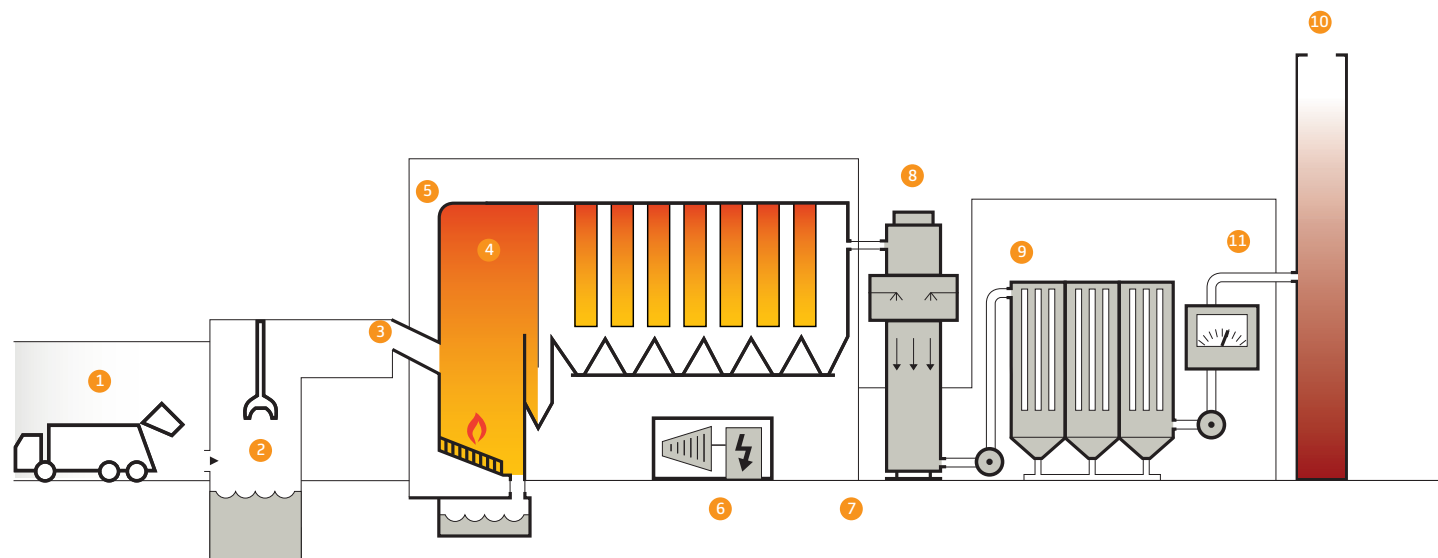
As waste self-combusts at the high temperatures in the boiler, no additional fossil fuels are required. Oil burners are only activated when the boiler is powered up or down in order to guarantee the minimum temperature of 850 °C. This high temperature is required by law. Pollutants are largely destroyed.

5

The nitrogen oxides present are converted into environmentally neutral nitrogen and water the addition of ammonia solution.

6

The thermal energy of the two boilers produces nearly 140 tonnes of steam every hour. At a pressure of 60 bar and a temperature of around 420 °C, the steam drives a turbine connected to a generator.



7

Approximately 140,000 megawatt hours of electrical energy and process steam for the chemical industrial park are generated in this way.

8

The flue gases leave the boiler at a temperature of approximately 200 °C and directly undergo flue gas cleaning. First, they are cooled to 130 °C in the spray absorber.

9

Lime hydrate and active carbon are used to remove dust, gaseous substances and heavy metals in the diversion reactor. These are then collected and removed in the fabric filter.

10

The cleansed flue gas then leaves the 70 m high stack. What remains is bottom ash, fly ash and filter dust. The bottom ash is recovered and used for the construction of roads and landfills. Fly ash and filter dust are used as backfilling material in mines.

11

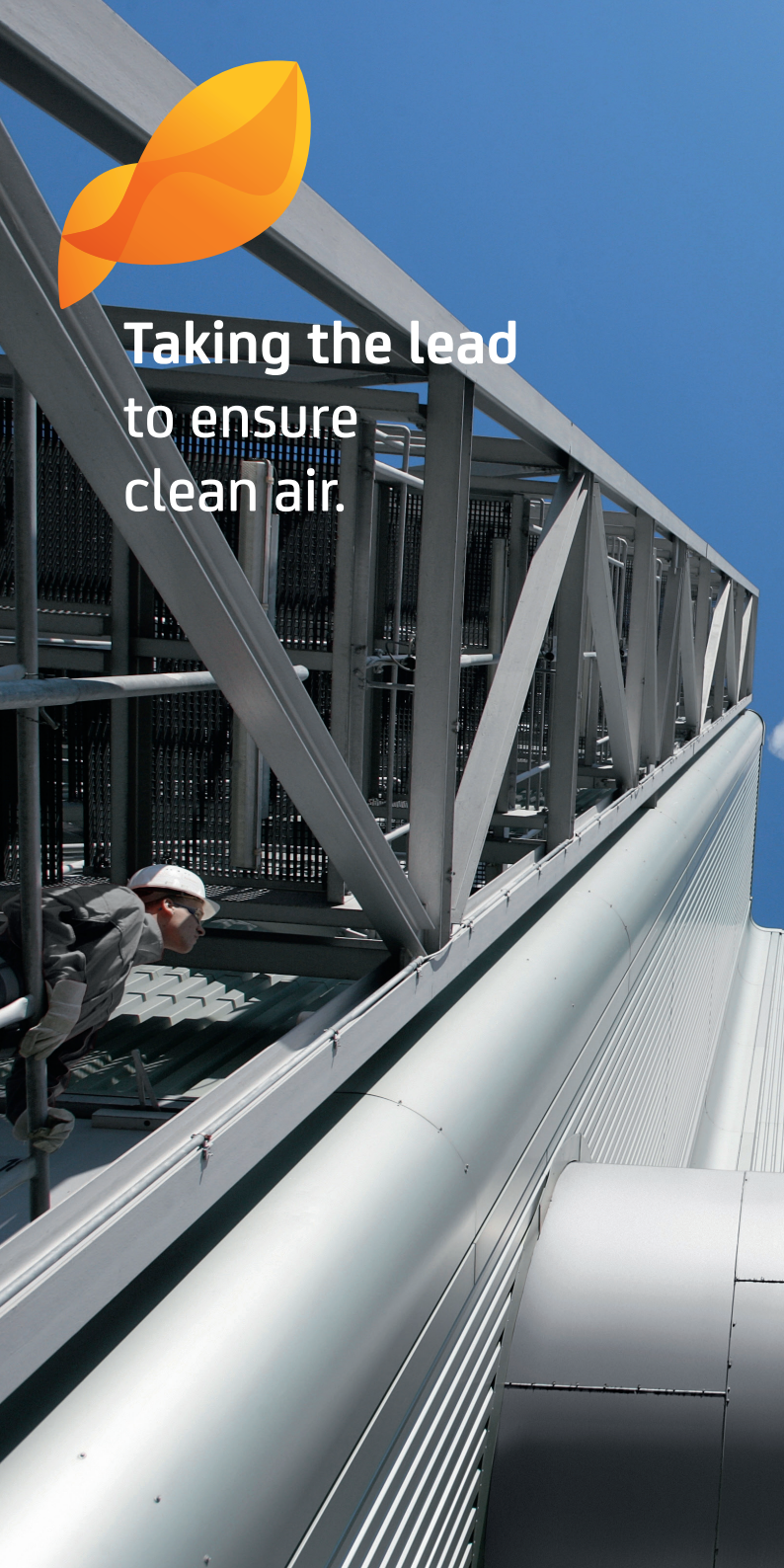
The plant easily complies with the particularly strict statutory emission limits and in most cases is substantially below them. A measuring station at the stack continuously analyses and monitors the emissions. The results are transmitted directly to the responsible supervisory authority.



Alexander Dederichs, Electrical Technician
EEW Energy from Waste Saarbrücken GmbH, EBKW Knapsack

Technical data

Commissioning	2009
Capacity	320,000 tonnes/year
Number of combustion lines	2
Waste bunker capacity	17,000 cubic metres ≈ 10,000 tonnes
Calorific range of waste	11 - 17 megajoules/kilogram
Electricity generation	140,000 megawatt hours/year ≈ 40,000 households
Process steam generation	363,000 megawatt hours/year



**Taking the lead
to ensure
clean air.**

We shrink the carbon footprint.

A benefit for the environment.

As waste contains 50 per cent biogenic substances on average, it is recognised that energy from waste plants produce energy from renewable sources pursuant to the Germany's Renewable Energy Sources Act (EEG) and thus contribute to reaching the climate targets in Germany and Europe.

Another area where we take the lead: The emissions from our waste recovery plant reliably comply with – and are sometimes substantially below – the strict limits established by the German Federal Immission Control Act.

This is documented by constant emissions monitoring and controlled by the supervisory authority.

Ideally, come and see for yourself during a tour of our plant. You will discover that at EEW Energy from Waste, we put waste to work for climate protection.



Our annual contribution to environmental protection:



Up to 320,000 tonnes
of waste recovered



Electricity produced in an
environmentally friendly manner
for 40,000 households



140,000 megawatt hours
of electricity generated in an
environmentally friendly manner



363,000 megawatt hours of
process steam produced with
resource-conserving technology



We tackle the future.

And assume responsibility.

For more than 148 years, our expertise has been built on progress. Founded in 1873 as the coal mining firm Braunschweigische Kohlen-Bergwerke (BKB), the company soon also became an electricity producer and has evolved steadily to the present day. Having entered the waste treatment business in 1990, EEW Energy from Waste now has a great wealth of experience and expertise in environmentally friendly energy generation from thermal waste recovery. As the market leader in Germany, with our 17 plants here and in neighbouring countries we make a substantial contribution to conserving resources and reducing greenhouse gas emissions.

Our figures speak for themselves:

Our plants have an annual energy recovery capacity of more than 5.0 million tonnes of waste. We can thus produce around 2.4 million megawatt hours of electricity, 3.3 million megawatt hours of process steam and around 1.15 million megawatt hours of district heating. EEW's electricity output alone corresponds to the power required by around 685,000 households.**

Our team of around 1,250 highly qualified, dedicated employees takes the lead by producing energy that benefits not only numerous companies but also hundreds of thousands of households and, most importantly, the environment.

References:

* Electricity, district heating and steam volume produced by 17 EEW Energy from Waste plants in 2021

** Assumed annual average consumption per household: 3,500 kWh



Rather than resting on our laurels, we continuously improve the processes and efficiency of our plants. Ultimately, we offer municipalities and companies pioneering waste recovery services that encompass everything from customised waste management concepts to waste acceptance and compliance with the statutory waste transfer documentation. We deliver outstanding performance and achieve a high level of acceptance among the general population and local residents.

This is how we take the lead. Together. For our future.



Would you like to find out more,
or visit the EEW site in Knapsack?
Please get in touch!
You can reach us at

EEW Energy from Waste Saarbrücken GmbH

EBKW Knapsack

Industriestraße 300

50354 Hürth

Germany

T +49 2233 92844-114

F +49 2233 92844-111

knapsack@eew-energyfromwaste.com

www.eew-energyfromwaste.com

2022-04